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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/752,661	01/06/2004	Paul D. Bradley	10010890-5	4120

7590 12/13/2004

AGILENT TECHNOLOGIES, INC.
Legal Department, DL429
Intellectual Property Administration
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Loveland, CO 80537-0599

EXAMINER

NGUYEN, HA T

ART UNIT	PAPER NUMBER
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2812

DATE MAILED: 12/13/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/752,661

Applicant(s)

BRADLEY, PAUL D.

Examiner

Ha T. Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10-18-4
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) 1-6 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 7-12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Notice to applicant

1. Applicant's Amendment and Response to the Office Action mailed 7-16-4 has been entered and made of record.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 7, 9, and 11-12 are rejected under 35 U.S.C. 102(b) as being anticipated by Ruby et al. (USPN 5873153, hereinafter "Ruby").

Referring to Fig. 11 and related text, Ruby discloses [Re claims 7 and 9] a method for fabricating an apparatus, the method comprising: fabricating a thin-film resonator 305-307 on a substrate 301; fabricating a bonding pad 303 connected to said thin-film resonator, a portion of said bonding pad in contact with the substrate to form a Schottky diode; wherein said bonding pad comprises a conductive material, the examiner interprets that the metal contact 303 inherently forms a Schottky diode with the semiconductor substrate 301 (see col. 6, lines 26-29); and

[Re claims 11 and 12] wherein said thin-film resonator comprises piezoelectric portion 306 sandwiched by a bottom electrode 305 and a top electrode 307; wherein the piezoelectric portion comprises Aluminum Nitride and said bottom and top electrodes comprises Molybdenum (see col. 6, lines 29-55).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are

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such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 8 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ruby. Ruby discloses substantially the limitations of claims 8 and 10, as shown above.

But it fails to disclose expressly wherein said bonding pad forms a plurality of Schottky diodes with the substrate; and wherein said bonding pad comprises conductor selected from a group consisting of gold, nickel, and chrome.

However, Ruby also discloses metal used for the electrode is from Mo, Al, W, Au, Pt, or Ti (See col. 5, lines 44-47). It would have been obvious for a person of ordinary skills in the art to use the same metal to form connection to reduce material requirement, ensuring cost efficient production. Ruby does not teach the forming of a plurality of bonding pads. However, it would have been obvious to form a plurality of pads when contact to a plurality of regions is needed.

Therefore, it would have been obvious to use Ruby's teaching to obtain the invention as specified in claims 8 and 10.

Response to Amendment

6. In view of applicant's arguments and the amendment to the claims, the objection to claims 8-10, for containing informalities, has been withdrawn.

Applicant's arguments with regard to the rejections under 35 U.S.C. 102 or 103 have been fully considered, but they are not deemed to be persuasive for at least the following reasons.

Applicant argued that the via 303 in Ruby is not a bonding pad, the examiner disagreed. As shown by Wolf, a bonding pad is a metallized pattern, a via is a metallized pattern, the metallic via can function as a bonding pad in an application where it is bonded to another device. The examiner is to give claims their broadest reasonable interpretation in light of the supporting disclosure See, e.g., *In Re Aletz*, 893 F.2d 319, 321-22, 13 USPQ2d 1320, 1322 (Fed. Cir. 1989) (see MPEP 2111).

Applicant also argued that Ruby does not teach a Schottky diode, the examiner disagreed, whether it is stated or not the metallic via 303 inherently forms a Schottky diode with the silicon

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substrate 301 (see Gibilisco for the definition of a Schottky diode). The via is in contact with the substrate.

Applicant's arguments concerning the discussion of ESD were deemed irrelevant since the claims do not include this limitation.

Applicant's also argued that there is no motivation to modify the reference. The examiner disagreed. Note that the test of obviousness under 35 USC 103 does not require an expressed suggestion of the claimed invention in the prior art. All that is required to show obviousness is that the claimed invention would have been made obvious by applying knowledge clearly present in the prior art. *In re Rosselet*, 347 F.2d 847, 146 USPQ 183 (CCPA 1965); *In re Shekler*, 438 F.2d 999, 168 USPQ 716 (CCPA 1971); *In re Sovish*, 769 F.2d 738, 226 USPQ 771 (Fed. Cir. 1985). It would have been obvious for an ordinary artisan to modify Ruby to obtain the claimed invention since forming a plurality of connections with metal already used in the process would reduce production time and cost.

Therefore, Ruby does teach or make obvious all the limitations of claims 7-12.

Conclusion

7. The prior art relevant to the disclosure of this application and not being used in the rejections.

Wolf, Stanley, "Silicon Processing For The VLSI Era, Volume 2: Process Integration" for the meaning of bonding pad.

Gibilisco, Stan, "The Illustrated Dictionary of Electronics", 6th Edition, for the definition of Schottky diode.

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for response to this final action is set to expire THREE MONTHS from the date of this action. In the event a first response is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

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CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event will the statutory period for response expire later than SIX MONTHS from the date of this final action.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ha T. Nguyen whose telephone number is (571) 272-1678. The examiner can normally be reached on Monday-Friday from 8:30AM to 6:00PM, except the first Friday of each bi-week. The telephone number for Wednesday is (703) 560-0528.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John F. Niebling, can be reached on (571) 272-1679. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Ha Nguyen

Primary Examiner

12- 10 - 04